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Serial No. 10/047,992

AMENDMENTS TO THE CLAIMS:

1. (Currently Amended): A method for forming an electric circuit on at least one construction member door trim panel comprised by a machine car, the method being based on a machine set of three-dimensional data, the machine set of three-dimensional data used to determine a position and a profile of the construction member, a position of the electric circuit, and a shape of the electric circuit, the electric circuit used for electrical connection between electric instruments mounted on the construction member,

the method comprising the steps of:

determining a position and a profile of the door trim panel disposed on the car and a position and a shape of an electric circuit formed on the door trim panel when the car is designed;

storing a set of three-dimensional data of the door trim panel and the electrical circuit determined at the design into a storage section as a first reference coordinate system; and

wherein the machine set of three-dimensional data is prepared when designing the machine and is in reference to a first reference coordinate system provided in the machine, a first origin of the first coordinate system being located at any position of the machine, and the machine set of three-dimensional data includes coordinates of points for determining arrangement of the electric circuit, a distance between any two of the points adjacent to each other, and a cross-sectional area of the electric circuit extended between the two points;

the method comprising the steps of:

converting the machine car set of three-dimensional data in the first coordinate system to a construction door trim panel set of three-dimensional data in a second coordinate system provided in relation to the construction member door trim panel disposed on a transfer unit and having a second origin in the construction member door trim panel[[,]]; and

Serial No. 10/047,992

wherein the first coordinate system and the second coordinate system do not coincide;
~~the method further comprising a step of intermittently jetting a molten metal against the construction member door trim panel to define rows of metal grains so as to deposit the molten metal on a surface of the construction member door trim panel to form the electric circuit on the construction member door trim panel based on the second door trim panel set of three-dimensional data,~~

wherein the first coordinate system and the second coordinate system do not coincide,
wherein the deposited metal grains overlap one another such that the electric circuit has the cross-sectional area stored in the second set of three-dimensional data between the two points, and
wherein the molten metal is jetted from a nozzle and both the nozzle and the construction member door trim panel have respective X, Y, Z axes perpendicular to each other, the nozzle being movable along each of the X, Y, Z axes, the nozzle moving in a circumferential direction around each of the X axis and Y axis, and the construction member door trim panel being movable along each of X, Y, Z axes and also in a circumferential direction around each of the X, Y, Z axes.

2-6. (Cancelled)

7. (Original): The method as described in claim 1 wherein an insulator is layered on the electric circuit.

8. (Previously Presented): The method as described in claim 7 wherein the method comprises the step of jetting a second molten metal against the insulator to deposit the second molten metal on the insulator.

Serial No. 10/047,992

9-10. (Canceled)

11. (Currently Amended): A method for forming an electric circuit on an insulating intermediate member laid on at least one ~~construction member~~ door trim panel comprised by a machine car, the machine being based on a machine set of three-dimensional data, the machine set of three-dimensional data used to determine a position and a profile of the construction member, a position of the electric circuit, and a shape of the electric circuit, the electric circuit used for electrical connection between electric instruments mounted on the construction member,

the method comprising the steps of:

determining a position and a profile of the door trim panel disposed on the car and a position and a shape of an electric circuit formed on the door trim panel when the car is designed;

storing a machine set of three-dimensional data of the door trim panel and the electric circuit determined at the design into a storage section as a first reference coordinate system;

wherein the machine set of three-dimensional data is prepared when designing the machine and is in reference to a first reference coordinate system provided in the machine, a first origin of the first coordinate system being located at any position of the machine, and the machine set of three-dimensional data includes coordinates of points for determining arrangement of the electric circuit, a distance between any two of the points adjacent to each other, and a cross-sectional area of the electric circuit extended between the two points;

the method comprising the steps of:

converting the machine car set of three-dimensional data in the first coordinate system to a construction door trim panel set of three-dimensional data in a second coordinate system provided

Serial No. 10/047,992

in relation to the construction member door trim panel disposed on a transfer unit and having a second origin in the construction member; door trim panel; and

wherein the first coordinate system and the second coordinate system do not coincide;
the method further comprising a step of intermittently jetting a molten metal against the
construction member door trim panel to define rows of metal grains so as to deposit the molten metal
on a surface of the intermediate member to form the electric circuit on the surface of the intermediate
member based on the second set of three-dimensional data,

wherein the first coordinate system and the second coordinate system do not coincide,
wherein the deposited metal grains overlap one another such that the electric circuit has the
cross-sectional area stored in the second set of three-dimensional data between the two points, and
wherein the molten metal is jetted from a nozzle and both the nozzle and the construction
member door trim panel have respective X, Y, Z axes perpendicular to each other, the nozzle being
movable along each of the X, Y, Z axes, the nozzle moving in a circumferential direction around
each of the X axis and Y axis, and the construction member door trim panel being movable along
each of X, Y, Z axes and also in a circumferential direction around each of the X, Y, Z axes.

12-16. (Canceled)

17. (Original): The method as described in claim 11 wherein an insulator is layered on the electric circuit defined on the insulating intermediate member.

Serial No. 10/047,992

18. (Previously Presented): The method as described in claim 17 wherein the method comprises the step of jetting a second molten metal against the insulator to deposit the second molten metal on the insulator.

19-50. (Canceled)

51. (Currently Amended): The method as described in claim 1, wherein, in the step of intermittently jetting the molten metal against the ~~construction member~~ door trim panel, an aerosol of the molten metal is jetted with compressed air against the ~~construction member~~ door trim panel to define the electric circuit.

52. (Currently Amended): The method as described in claim 51, wherein, in the step of intermittently jetting the molten metal against the ~~construction member~~ door trim panel, a mask is provided for the ~~construction member~~ door trim panel to prevent scattering of the molten metal, the mask having a through hole which passes the molten metal to deposit it on the ~~construction member~~ door trim panel.

53. (Currently Amended): The method as described in claim 1, wherein, in the step of intermittently jetting the molten metal against the ~~construction member~~ door trim panel, a compressed gas having a temperature lower than a melting or softening temperature of the metal is jetted from a nozzle with an ultrasonic speed such that the grains of the metal are entrained in the ultrasonic speed flow of the gas in the nozzle.

Serial No. 10/047,992

54. (Previously Presented): The method as described in claim 11, wherein, in the step of intermittently jetting the molten metal against the intermediate member, an aerosol of the molten metal is jetted with compressed air against the intermediate member to define the electric circuit.

55. (Previously Presented): The method as described in claim 54, wherein, in the step of intermittently jetting the molten metal against the intermediate member, a mask is provided for the intermediate member to prevent scattering of the molten metal, the mask having a through hole which passes the molten metal to deposit it on the intermediate member.

56. (Previously Presented): The method as described in claim 11, wherein, in the step of intermittently jetting the molten metal against the intermediate member, a compressed gas having a temperature lower than a melting or softening temperature of the metal is jetted from a nozzle with an ultrasonic speed such that the grains of the metal are entrained in the ultrasonic speed flow of the gas in the nozzle.

57. (Previously Presented): The method as recited in claim 1, wherein corresponding axes of the first coordinate system and the second coordinate system are non-parallel and wherein the first origin and the second origin do not coincide.

58. (Previously Presented): The method as recited in claim 11, wherein corresponding axes of the first coordinate system and the second coordinate system are non-parallel and wherein the first origin and the second origin do not coincide.